

BBNA Tribal Energy Efficiency & Conservation Block Grant Program

Administered by Alaska Building Science Network

Togiak Final Report



Community Summary

Two (2) community buildings owned by the Traditional Council of Togiak received energy efficient lighting and weatherization upgrades:

Traditional Council Office/ Senior Center
Clinic

Lighting Retrofits Completed: February 2012

Weatherization Retrofits Completed: August 2011

Village-Wide Energy Efficient Lighting and Weatherization Retrofit Summary:

• Projected Annual Electrical Savings (kWh):	17,232
• Projected Annual Electrical Cost Savings:	\$7,963 ^{1,2}
• Projected Annual Heating Fuel Savings (gallons):	4,596
• Projected Annual Fuel Cost Savings:	\$22,750 ³
• Total Projected Annual Energy Cost Savings:	\$30,714
• Total village wide in-kind contribution:	\$59,426
• Total project cost including In-kind contributions:	\$110,557
• Simple Payback (including In-kind contributions):	3.60 years

¹ kWh Rate [used to calculate electrical cost savings] for Weatherization & Heating Measures (AkWarm Library): \$0.38

² kWh Rate [used to calculate electrical cost savings] for Lighting Measures (State of AK - AEA PCE Program Report FY 2011 avg.): \$0.55

³ #2 Heating Fuel Rate [used to calculate heating fuel savings] (AkWarm Library): \$4.95/gal

Traditional Council Office (including Senior Center)

Total Building Savings All Measures:

- Projected Annual Electrical Savings (kWh): 3,657
- Projected Annual Electrical Cost Savings: \$1,898
- Projected Annual Heating Fuel Savings (gallons): 1,543
- Projected Annual Fuel Cost Savings: \$7,638
- Total Projected Annual Energy Cost Savings: \$9,536

Lighting Retrofit Summary:



Materials Installed

Fluorescent 2-lamp electronic ballast, (1) 25 watt T8 lamp
 Fluorescent 2-lamp electronic ballast, (2) 25 watt T8 lamps
 Fluorescent 4-lamp electronic ballast, (3) 25 watt T8 lamps
 CFL-23 W
 Occupancy sensors

Quantity

1
 34
 10
 3
 4

- Pre-retrofit energy use: 4.128 kW
- Post-retrofit energy use: 2.409 kW
- Energy savings projection: 1.719 kW
- Pre-retrofit to post retrofit energy reduction: 42 percent
- Estimated Annual Savings: 3,008 kWh

Hours/day (250 days/year)	Electrical Savings (\$)	Avoided Diesel (gal)	Avoided Diesel (\$)
4 Hours/day	\$945.11	124.21	\$416.09
7 Hours/day	\$1,653.94	217.36	\$728.15
10 Hours/day	\$2,362.77	310.51	\$1,040.22
2000 Hours/year	\$1,890.21	248.41	\$832.17

Traditional Council Office (including Senior Center)

Weatherization Retrofit Summary:



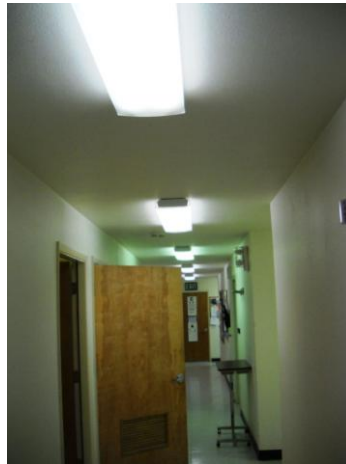
Materials Installed

Installed 3 programmable thermostats
 Caulk and seal building to reduce air leakage
 Installed R-60 loose fill fiberglass insulation in attic
 Seal and insulate rim joist with 2" rigid foam and caulk
 Installed R-30 batt insulation in crawlspace perimeter
 Replaced 2 existing windows with insulated vinyl windows
 Clean & tune boiler for improved efficiency

• Pre-retrofit energy use:	3,226 gallons / 1,122 kWh
• Post-retrofit energy use:	1,683 gallons / 473 kWh
• Annual energy savings projection:	1,543 gallons / 649 kWh
• Pre-retrofit to post retrofit energy reduction:	48% (Fuel) / 58% (Electricity)
• Estimated Annual Electrical Cost Savings:	\$246.62
• Estimated Annual Heating Fuel Cost Savings:	\$7,637.85

Clinic**Total Building Savings All Measures:**

- Projected Annual Electrical Savings (kWh): 13,575
- Projected Annual Electrical Cost Savings: \$6,066
- Projected Annual Heating Fuel Savings (gallons): 3,053
- Projected Annual Fuel Cost Savings: \$15,112
- Total Projected Annual Energy Cost Savings: \$21,178

Lighting Retrofit Summary:**Materials Installed**

Fluorescent 2-lamp electronic ballast, (1) 25 watt T8 lamp
 Fluorescent 2-lamp electronic ballast, (2) 25 watt T8 lamps
 Fluorescent 4-lamp electronic ballast, (4) 25 watt T8 lamps
 Occupancy sensors

Quantity

3
 34
 21
 2

- Pre-retrofit energy use: 6.696 kW
- Post-retrofit energy use: 3.532 kW
- Energy savings projection: 3.164 kW
- Pre-retrofit to post retrofit energy reduction: 47 percent
- Estimated Annual Savings: 5,537 kWh

Hours/day (250 days/year)	Electrical Savings (\$)	Avoided Diesel (gal)	Avoided Diesel (\$)
4 Hours/day	\$1,739.57	228.61	\$765.85
7 Hours/day	\$3,044.24	400.07	\$1,340.24
10 Hours/day	\$4,348.92	571.24	\$1,914.63
2000 Hours/year	\$3,479.13	457.23	\$1,531.71

Clinic

Weatherization Retrofit Summary:



Materials Installed

Installed 1 programmable thermostat
 Caulk and seal building to reduce air leakage
 Seal and insulate rim joist with 4" rigid foam and caulk
 Installed R-25 batt crawlspace perimeter
 Installed R-60 loose fill fiberglass insulation in attic
 Installed R-25 batt insulation in attic knee wall

• Pre-retrofit energy use:	4,543 gallons / 13,113 kWh
• Post-retrofit energy use:	1,490 gallons / 5,075 kWh
• Annual energy savings projection:	3,053 gallons / 8,038 kWh
• Pre-retrofit to post retrofit energy reduction:	67% (Fuel) / 61% (Electricity)
• Estimated Annual Electrical Cost Savings:	\$3,021.48
• Estimated Annual Heating Fuel Cost Savings:	\$15,112.35